REMARKS

Claims 1-15 and 17-33 are pending in this application, of which claims 13, 15 and 22 have been amended and claims 23-33 are newly added. Claim 16 has been canceled.

The Examiner has required a new, more descriptive title.

Accordingly, the title has been corrected to read:

SEMICONDUCTOR DEVICE HAVING A MUSHROOM GATE WITH A HOLLOW SPACE

The Examiner has objected to claim 19 for an informality which has been corrected in the aforementioned amendments.

Claims 13, 15, 16 and 22 stand rejected under 35 U.S.C. § 103(a) as unpatentable over JP 10-150054 to Oshima (hereinafter "**Oshima**") in view of U.S. Patent 6,040,248 to Chen et al. (hereinafter "**Chen et al.**").

Applicants respectfully traverse this rejection.

Oshima shows, in Figs. 1a-1b and 4a-4c, a T-type gate 5 including a fine gate and an over gate formed on the fine gate and having a broadened size along a current direction, and a void (hollow space) 7 located under the over gate to surround the side surfaces of the fine gate. In Figs. 1a-1b, a protective film 6, e.g., a silicon oxide film of 4000 Å thick, is sputtered on the substrate. The space under the over gate is shielded or shadowed by the over gate. In Figs. 4a-4c, the space under the over gate is preliminarily occupied or filled with polyimide film 22, then an insulating film 23, such as a silicon nitride or silicon oxide film, is formed by CVD, openings 31 are formed through the insulating film by RIE (Figs. 5a-5b), and the polyimide film is removed by ashing using oxygen plasma.

The protective film 6 is made of silicon oxide, not an organic material. The Examiner has cited **Chen et al.** as an example of using organic material covering a gate electrode.

The void (hollow space) of **Oshima** is located only under the top gate, and cannot be located on the side surface nor on the top surface of the over gate (e.g., the manufacturing process described above). In the applicants' invention, the hollow space can extend over the side surface and/or the top surface of the over gate (see Figs. 1G and 2E). Accordingly, claim 13 has been amended to clarify that the hollow space extends to the side surfaces and/or the top surface of the over gate.

Claim 15 covers the structure shown in Fig. 2E, where the hollow space Hx covers at least part of the top surface of the over gate on the source side. The description "the hollow space surrounds a source side region of said mushroom gate and touches a lower surface of the over gate" was intended to read on the hollow space on the top surface. Claim 13 has been amended to recite the hollow space extending on the side surfaces or top surface of the over gate. Claim 15 has been amended to recite "the hollow space surrounds a source side region of said mushroom gate and touches lower and upper surfaces of the over gate."

Claim 22 has been amended in a manner similar to claim 13 to clarify that at least some of the hollow spaces extend to the side surfaces and/or top surface of the over gate.

Accordingly, the 35 U.S.C. § 103(a) rejection should be withdrawn.

The embodiment of Fig. 2E shows asymmetric cross-section configuration of the hollow space with respect to the current (source-drain) direction. Figs. 1A and 1AP show a stepped recess under the fine gate, and a semi-insulating region around the active region. These features are not disclosed in **Oshima**. The opening reaching the hollow space, as recited in claims 13 and 22, is

necessary in the manufacturing process, but can be refilled. So, the limitation of the opening has been removed in the additional claims. Newly-added claims 23-33 recite these features.

In view of the aforementioned amendments and accompanying remarks, claims 1-15 and 17-33, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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